

Digital Clamp Meter

User's Manual

1. SUMMARIZE

This instrument is a 6000 counts hand-held automatic range True RMS digital clamp meter. The circuit design of the meter takes the large-scale integrated circuit Σ/Δ analog-to-digital converter (ADC) as the core, and it has the full-range overload protection. It can be used to measure AC and DC voltage, low-pass filter V.F.C, low-impedance Low Z voltage, AC and DC current, resistance, diode, continuity test, capacitance, frequency, duty cycle, temperature and other parameters, at the same time, it has the data hold, relative value measurement, surge current measurement function, flashlight function, NCV function, Live line judgment, low voltage display and automatic shutdown function.

2. OPEN PACKING FOR CHECKING

Open the box, take out the meter, checking the items below, if there is anything

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missing or damaging, please contact with your supplier.

- K type probe(-20°C~250°C) 1pc
- 1.5V AAA battery 2pcs
- Manual 1pc
- Test lead 1pair
- Carrying bag 1pc

3. SAFETY NOTES

The meter's design is in accordance with the CE certification, IEC61010 related terms, in conformity with double insulation, Safety standard for overvoltage CAT III 600V. If you do not use the clamp meter in accordance with the relevant operating instructions, the protection provided by the clamp meter will be weakened or lost.

1. Check the clamp meter and test leads before use to prevent any damage or abnormal phenomenon. If you find test leads and housing insulation is obviously

damaged, and the LCD has no display, etc., or you think the clamp meter cannot work properly, please do not use it again.

2. Do not use clamp meter before the back cover and battery cover are not properly covered to avoid electric shock.

3. Remember that the fingers do not exceed the hand part of the test leads when measuring, do not contact exposed electricity wires, connectors, unused inputs or measured circuits to prevent electric shock.

4. The function switch must be placed in the correct position before measurement. It is strictly forbidden to change range during measurement to prevent damage to the clamp meter.

5. Do not apply more than DC1000V/AC 750V voltage between the terminal of the clamp meter and the ground to avoid electric shock and damage to the clamp meter.

6. Be careful when measuring voltage which is higher than 24V DC or AC True RMS to avoid electric shock.

7. Use the clamp meter according to the instructions of manual, and it is forbidden to

measure the voltage or current higher than the allowable input value. Before doing online resistance, capacitance, diode, or circuit continuity measurements, you must first cut off all power supplies in the circuit and discharge all capacitors to avoid the incorrect measurement results.

8. When the LCD displays the " " sign, please replace the battery in time to ensure the measurement accuracy. When you not plan to use this clamp meter for a long time, you should remove the battery.

9. Do not change the internal wiring of the clamp meter to avoid damage of the instrument and hidden danger of the user.

10. Do not store or use the clamp meter in a high temperature, high humidity, flammable, explosive and strong electromagnetic field environment.

4. ELECTRIC SYMBOL

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	Warning		DC
	High voltage damage		AC
	Ground		AC and DC
	Dual insulation		Accord with the order of European Union
	Low battery		Fuse

5. GENERALSPECIFICATION

- 5.1. Max. Display: 5999, sampling rate 3 times / sec.
- 5.2. Polarity indication: The positive and negative polarities automatically display.
- 5.3. Over load indication: LCD displays OL or -OL
- 5.4. Low battery indication: " " symbol displays
- 5.5. Operation temperature: 0~40℃, relative humidity <75%
- 5.6. Storage environment:-10℃~50℃, relative humidity <80%RH;

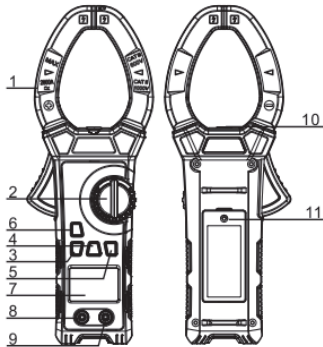
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- 5.7. Power: 2*1.5V AAA battery LR03
- 5.8. The Max. opening size of the clamp: Diameter 58mm
- 5.9. Max. measuring current wire: Diameter 52mm
- 5.10. Size: 273×102×47 mm
- 5.11. Weight: approx.420g (including batteries)

- 8. COM terminal
- 9. Input terminal
- 10. Torch
- 11. Battery cover screws

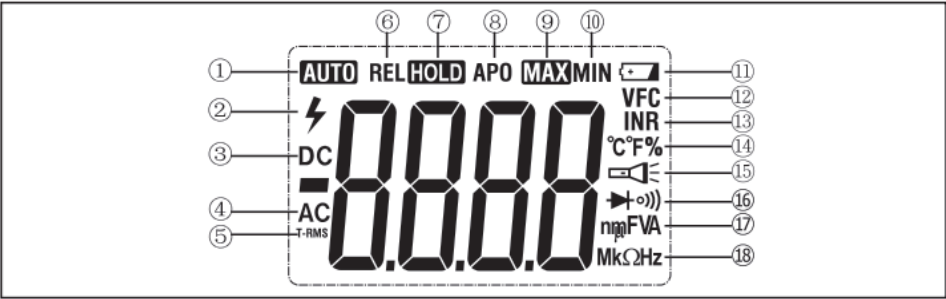
6. APPEARANCESTRUCTURE

- 1. Clamp jaw
- 2. Range knob
- 3. Relative value measurement / Torch switch
- 4. Data hold and backlight
- 5. Dc current zeroing/AC surge current testing
- 6. Select key/ V.F.C (L.P.F) low pass filter
- 7. LCD



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7. DISPLAY SCREEN



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①	Auto range	⑩	Minimum measurement
②	High voltage	⑪	Low battery
③	DC measurement	⑫	Low-pass filter measurement
④	AC measurement	⑬	Surge current measurement
⑤	True RMS value	⑭	Celsius, Fahrenheit, duty cycle
⑥	Relative value measurement	⑮	Torch
⑦	Data hold	⑯	Diode, continuity test
⑧	Auto shut-down	⑰	Capacitance, voltage, current.
⑨	Maximum measurement	⑱	Ohm, Kilo ohm, Mega ohm, Frequency

Long press: Long press this key at AC voltage range, the V.F.C character appears on the LCD screen, then you can perform low-pass filter voltage test.

8.3. Relative value measurement (REL/)

Short press: short press this key to measure the relative value at AC and DC voltage range, capacitance range, AC current, temperature, resistance range.

Long press: Long press this key to turn on/off the flash light.

8.4. Surge current test (ZERO/ INR)

Short press: Press this key at DC current range to clear the open circuit base value.

Long press: Long press this key at AC current range, the screen will flash "----" and the INR character, now you entered the surge current test mode. Long press this button again to turn off the Surge current test, and the INR character will disappear.

8.5. Automatic shutdown function

- In order to save power consumption and prolong battery life, the meter will turn on the APO automatic shutdown function by default after it is turned on. If the user does not operate the meter within 14 minutes, the meter will beep 3 times to

8. BUTTON FUNCTION

Button Introduction: short press <2 seconds, long press ≥ 2 seconds

8.1. Data hold button (HOLD B/L)

Press the HOLD B/L key to enter the reading hold measurement mode, and press the HOLD B/L button again to exit it.

Long press the HOLD B/L key to turn on the backlight, and then long press the HOLD B/L key to turn it off. The backlight will be turned off automatically after 15 seconds since you turned it on.

8.2. Select button (SELECT/V.F.C)

Short press: Press this key at NCV range to switch between NCV and Live line judgment test. Press this key at current range to switch the AC/DC current test. Press this key at frequency range to switch between frequency and duty cycle test; Press this key at temperature range to switch between Celsius and Fahrenheit. Press this key at resistance range to switch resistance, capacitance, diode and continuity test.

prompt. If there is still no operation, after another 1 minute, the meter will have a long beep before automatically turn off the power. If you want to wake it up, you should turn the range switch to the OFF range, then turn again to the required function range or short press V.F.C key.

- At the shutdown state, press and hold the SELECT/ V.F.C key while turning the range switch. After the meter enters the normal measurement state, the automatic shutdown function can be canceled, and the "APO" symbol will no longer displayed on the LCD screen. When the meter is not at the automatic shutdown mode, if the user does not operate the meter within 15 minutes, the meter will still beep every 15 minutes to remind the user to shut down.

9. OPERATE INSTRUCTIONS

9.1. AC current and Surge current measurement

1. Turn the dial knob to the current range. The meter defaults to AC current

measurement. Short press SELECT/V.F.C to switch to DC current measurement

2. Press and hold the trigger to open the clamp head and use the clamp head to grab the measured conductor, then slowly release the trigger until the clamp head is completely closed, please make sure whether the measured conductor is clamped in the center of the clamp head, otherwise, it will occur an additional error. The clamp meter can only measure one current conductor at a time. If two or more current conductors are measured at the same time, the measurement readings will be wrong.

3. Read the True RMS of AC current directly from the display.

4. If you want to measure relative value, short press REL key and REL character will appear on meter screen. Short press it again to exit the relative measurement, and the REL character disappears.

5. Long press the ZERO/INR key at AC current range to measure the surge current. At the same time, the INR character appears on the screen. At this time, the electric appliance can be started to measure the Instantaneous maximum current. Long press again to exit the surge current measurement and the INR character will

9.2. DC current measurement

1. Turn the dial knob to the current range. The meter defaults to AC current measurement. Short press SELECT/V.F.C to switch to DC current measurement

2. If the open circuit of the meter is not zero, short press the ZERO/INR key to clear it. After measuring the large current, the device will have some residual magnetism, which will not disappear so quickly, so the LCD display will have a base value.

3. Press and hold the trigger to open the clamp head and use the clamp head to grab the measured conductor, then slowly release the trigger until the clamp head is completely closed, please make sure whether the measured conductor is clamped in the center of the clamp head, otherwise, it will have additional errors. The clamp meter can only measure one current conductor at a time. If two or more current conductors are measured at the same time, the measurement readings will be wrong.

4. Read the measured current from the display directly.

 Note:

- The current measurement function must be operated between 0°C~40°C. In the

disappear. The surge current measurement is the maximum current true RMS of about 200ms integration period.

 Note:

- The current measurement function must be operated between 0°C~40°C, hold the trigger and don't release it suddenly. The Hall element is a sensitive device, which is not only sensitive to magnetism, but also to thermal and mechanical stress in different degree, and impact will cause the reading to change in a short time.
- In order to ensure the accuracy of the measurement data, the measured conductor must be placed in the center of the clamp head. Otherwise, $\pm 1.0\%$ additional error of the reading will occur.
- When the measured current is higher than 500A, the continuous test time cannot exceed 60 seconds, and if the measured current is higher than 1000A, the continuous test time cannot exceed 10 seconds.

DC current measurement, if the reading is positive, the direction of the current is from top to bottom (up for the panel and down for the bottom cover). Hold the trigger and don't release it suddenly. The Hall element is a sensitive device, which is not only sensitive to magnetism, but also to thermal and mechanical stress in different degree, and impact will cause the reading to change in a short time.

- In order to ensure the accuracy of the measurement data, the measured conductor must be placed in the center of the clamp head. Otherwise, $\pm 1.0\%$ additional error of the reading will occur.
- After the DC current (especially large current) test is completed, the base value of the open circuit may be too large. Please do an AC current test and eliminate the residual magnetism signal generated by the clamp head through the AC electric field.
- When the measured current is higher than 500A, the continuous test time cannot exceed 60 seconds. and if the measured current is higher than 1000A, the

continuous test time cannot exceed 10 seconds

9.3. AC voltage measurement V_{\sim} and low-pass filter voltage measurement $V.F.C$

1. Insert the red test lead into the " $V_{\Omega-H}Live^{\circ C^{\circ F}}$ " jack and the black test lead into the COM jack.
2. Turn the meter knob to the voltage range, connect the red and black test lead in parallel to the measured power supply or load .
3. Read the True RMS of AC voltage directly from the display
4. Long press the V.F.C key at ACV range can open/close the low-pass filter function. And the low-pass filter can test the composite sine wave signal generated by inverter and variable frequency motor.

 Note:

- Do not input voltage higher than DC 1000V or AC 750V. Although it is possible to measure higher voltage, it may easily damage the meter.

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higher voltage, it may easily damage the meter.

- When measuring high voltage, pay special attention to avoid electric shock.
- Test a known-voltage before use the device, it is to confirm whether the product function is correct.
- After using Low Z low impedance function range, please wait 3 minutes before perform Low Z voltage measurement. ($Low\ Z \leq 3k\Omega$), in order to eliminate false voltages, the Low Z function of the meter will provide a low impedance on the entire wire circuit to obtain more accurate measurements.
- When the measured voltage is higher than 24V AC safe voltage, the LCD of this meter displays the high-voltage prompt " ⚡ " for warning, and pay attention to wear safety protection equipment.

9.5. DC voltage measurement

1. Insert the red test lead into the " $V_{\Omega-H}Live^{\circ C^{\circ F}}$ " jack and the black test lead into the COM jack.

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- When measuring high voltage, pay special attention to avoid electric shock.
- Disconnect the test lead from the measured circuit after all measurement operations are completed.
- When the measured voltage is higher than 24V DC/AC safe voltage, the LCD of this meter displays the high-voltage prompt " ⚡ " for warning, and pay attention to wear safety protection equipment.

9.4. Low Z low impedance AC voltage measurement

1. Insert the red test lead into the " $V_{\Omega-H}Live^{\circ C^{\circ F}}$ " jack and the black test lead into the COM jack.
2. Turn the meter knob to the low impedance AC voltage measurement range, and connect the test leads in parallel to the measured power supply or load.
3. Read the True RMS of AC voltage directly from the display.

 Note:

- Do not input voltage higher than AC 300V. Although it is possible to measure

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2. Turn the meter knob to the voltage range, the meter defaults to DC voltage range, connect the red and black test lead in parallel to the measured power supply or load .
3. Read the measured voltage from the display

 Note:

- Do not input voltage higher than DC 1000V or AC750V. Although it is possible to measure higher voltage, it may easily damage the meter.
- When measuring high voltage, pay special attention to avoid electric shock.
- Disconnect the test lead from the measured circuit after all measurement operations are completed.
- When the measured voltage is higher than 24V DC/AC safe voltage, the LCD of this meter displays the high-voltage prompt " ⚡ " for warning, and pay attention to wear safety protection equipment.

9.6. Resistance measurement

1. Turn the knob to the " $\Omega-H$ " range, the meter defaults to the resistance range.

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2. Insert the red test lead into the " $V\Omega-HLive^{\circ}C^{\circ}F$ " jack and the black test lead into the COM jack.

3. Connect the test lead wire to both ends of the measured resistance. and read the reading directly from the LCD screen.

 Note:

- If the tested resistor is under open circuit or the resistance of the measured resistor exceeds the maximum range of the meter, the display will show "OL"
- When measuring on-line resistance, all power supplies in the measured circuit must be turned off before the measurement, and all capacitors should be released completely. In order to ensure the measurement is correct.
- When measuring low resistance, the test leads will have about 0.1Ω - 0.2Ω measurement error. In order to obtain accurate readings, you can perform relative value measurement, after the test leads are short-circuited, subtract (clear) firstly the displayed value, then perform the low resistance measurement.

diode or continuity test measurement mode.

3. When under continuity test, if the resistance of the tested circuit is less than 50Ω , the built-in buzzer will sound.

4. In the diode measurement mode, connect the red test lead and black test lead to the positive and negative pole of the diode respectively, and the LCD will display the forward voltage drop of the diode.

●  Note:

- If the open circuit or polarity of the measured diode is reversely connected, the display will show "OL".
- When measuring online diode and continuity test, all power supplies in the measured circuit must be turned off before the measurement, and all capacitors should release completely.
- The open circuit voltage of the diode test is about 3.9V, the open circuit voltage of the continuity test is about 2V, and the range of the measurement range is 600Ω .

- If the resistance value is higher than 0.5Ω when the test leads are short-circuited, you need to check whether the test leads are loose or other reasons.
- When measuring resistance above $1M\Omega$, it may take a few seconds for the reading to stabilize. It is normal for high resistance measurements. In order to obtain stable readings, you can buy an extra short alligator clip test line instead of our standard test leads to do the measurement.
- Do not input voltage higher than DC 42V or AC 30V to avoid personal safety injury
- Disconnect the test lead from the measured circuit after all measurement operations are completed.

9.7. Diode and continuity test

1. Insert the red test lead into the " $V\Omega-HLive^{\circ}C^{\circ}F$ " jack and the black test lead into the COM jack.

2. Turn the knob to the resistance range, short press "SELECT/V.F.C" key to select

- Do not input voltage higher than DC 42V or AC 30V to avoid personal safety injury.
- Disconnect the test lead from the measured circuit after all measurement operations are completed.

9.8. Capacitance measurement

1. Insert the red test lead into the " $V\Omega-HLive^{\circ}C^{\circ}F$ " jack and the black test lead into the COM jack.

2. Turn the knob to the resistance range, short press "SELECT/V.F.C" key to switch the capacitance measurement.

3. Connect the test lead to both ends of the measured capacitor and confirm whether the polarity is correct.

4. Read the measured capacitance value directly from the LCD display. It is recommended to use a short test line input for capacitance measurement, which can reduce the influence of distributed capacitance

5. When measuring capacitance less than 10nF, you can perform the relative value measurement to ensure the measurement accuracy, that is, press REL key for measurement, at the same time, REL characters appear on the screen. Short press it again to exit the relative measurement, and the REL character will disappear

 Note:

- If the tested capacitor is under open circuit or the capacitance of the measured capacitor exceeds the maximum range of the meter, the display will show "OL"
- For capacitance larger than 600μF, the measurement will take a long time. In order to ensure the accuracy, it is recommended to discharge all the residual charge of capacitors or capacitors in the circuit before the test, and then input the capacitance into the meter for measurement. it is more important for capacitors with high voltage to avoid damage to the meter and personal safety
- Disconnect the test lead from the measured capacitance after all measurement operations are completed.
- It is strictly forbidden to input the voltage higher than 36V AC/DC signal at the

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amplitude≤20Vpp; do not input voltage higher than 20Vrms to avoid personal safety injury.

- Disconnect the test lead from the measured circuit after all measurement operations are completed.

9.10. Temperature measurement

1. Turn the knob to °C/°F range, and the meter displays the current ambient temperature
2. Insert the temperature K type plug into the corresponding hole.
3. Put the temperature probe into the measured object for a few seconds, then read the measured Celsius temperature directly from the screen
4. Short press the SELECT/ V.F. C key to switch between Fahrenheit and Celsius

 Note:

- The ambient temperature of the meter cannot exceed 18-28°C range, Otherwise the measurement error will occur, especially in the low-temperature environment
- Do not input voltage higher than DC 42V or AC 30V to avoid personal safety

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capacitance range.

9.9. Frequency measurement

1. Insert the red test lead into the "VΩ-HLive°C°F" jack and the black test lead into the COM jack.
2. Turn the knob to Hz range, and connect the test leads in parallel to the measured signal source.
3. Short press the SELECT/V.F.C key to switch between frequency and duty cycle.
4. Read the measured frequency or duty cycle value directly from the display.

 Note:

- The frequency measurement must meet the requirement of input amplitude a:
10Hz- 100kHz: 1Vrms≤ input amplitude≤20Vrms。
100kHz-10MHz : 3Vrms≤ input amplitude≤20Vrms。
- Duty cycle: 10%-90%range, suitable for 10Hz-1kHz square waves; 30%-70%range, suitable for 1kHz-10kHz square waves; input amplitude:3Vpp≤input

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injury

- Take out the temperature probe after all measurement operations are completed.

9.11. Live Wire Recognition Live

1. Turn the knob to the NCV range, the meter defaults to the NCV range, short press the SELECT/V.F.C. key to switch the Live function, and the LCD displays Live.
2. Insert the red test lead into the "VΩ-HLive°C°F" jack, and touch the measured position with the red test lead.
3. If meter has audible and visual alarm, the tested wire connected to the red test lead is a live wire. If it is no change, the tested wire is not a live line.

 Note:

- The range must be operated in accordance with safety rules.
- This function only detects AC standard main live wire (AC 110V~AC 380V).

9.12. Non-contact AC voltage induction measurement NCV

1. Turn the knob to NCV range, the meter defaults to the NCV range, and the LCD

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displays NCV.

2. The NCV induction voltage range is 48V~250V. Put the upper part of the clamp head of the instrument close to the measured charged electric field (AC power line, socket, etc.), when the instrument sensing AC voltage electric field, the meter will display “----” and the buzzer issued "drop, drop" alarm sound. As the intensity of the induction electric field increases, the more horizontal sections of "----" displays on the LCD, and the higher the sound frequency of the buzzer

⚠Note: When the tested electric field voltage is \geq AC 100V, pay attention to whether the conductor of the measured electric field is insulated to avoid electric shock.

10. TECHNICAL CHARACTERISTIC

Accuracy calibration, ambient temperature: 23°C \pm 5°C, humidity less than 75%RH.

10.2. Direct current DCA

Range	Accuracy	Resolution	Overload protection
600A	$\pm(4.0\%+10)$	0.1A	2000A
2000A		1A	

⚠Accurate value is 10% to 100% of the range, you can short press the ZERO key to clear the open circuit base value before test.

When the measured current is higher than 500A, the continuous test time cannot exceed 60seconds. When the measured current is higher than 1000A, the continuous test time cannot exceed 10 seconds.

10.3. AC voltage (V~)

Range	Accuracy	Resolution	Overload protection
6V	$\pm (1.0\%+10)$	0.001V	1000VDC/750VAC
60V		0.01V	
600V		0.1V	
750V	$\pm (1.0\%+12)$	1V	

10.1. AC current ACA

Range	Accuracy	Resolution	Overload protection
600A	$\pm(4.0\%+10)$	0.1A	2000A
2000A		1A	

⚠Frequency response: 50Hz~60Hz;

Display: the current True RMS;

Accuracy is 10% to 100% of the range.

The open circuit of the current range allows ≤ 10 words of remaining readings;

When the measured current is higher than 500A, the continuous test time cannot exceed 60seconds. When the measured current is higher than 1000A, the continuous test time cannot exceed 10 seconds.

Long press the ZERO/INR key at AC current range to measure the surge current. At the same time, the INR character appears on the screen. Long press it again then the INR character disappears.

⚠Display: Voltage True RMS; Input impedance: $\geq 10M\Omega$;

Frequency response: sine wave and triangle wave 40Hz~1kHz;

Short press V.F.C key at AC voltage range to switch to low-pass filter measurement.;

V.F.C low-pass filter frequency response: sine wave and triangle wave 40Hz~200Hz;

The accuracy of V.F.C low-pass filter measurement is $\pm(5.0\%+10)$

Accurate value is 5% to 100% of the range.

The open circuit of the voltage range allows ≤ 5 words of remaining readings.

10.4. DC voltage (V $\overline{\text{—}}$)

Range	Accuracy	Resolution	Overload protection
600mV	$\pm (0.5\%+7)$	0.1mV	1000VDC/750VAC
6V		0.001V	
60V		0.01V	
600V	$\pm (1.0\%+10)$	0.1V	
1000V		1V	

⚠ Input impedance: $\geq 10\text{M}\Omega$;

Accurate value is 5% to 100% of the range.

The open circuit of the voltage range allows ≤ 5 words of remaining readings

10.5. Low impedance AC voltage Low Z V~

Range	Accuracy	Resolution	Overload protection
6V	$\pm (1.0\%+10)$	0.001V	300V DC/AC
60V		0.01V	
300V	$\pm (1.0\%+12)$	0.1V	

⚠ Display: AC voltage True RMS;

Input impedance: $\leq 3\text{k}\Omega$;

Frequency response: sine wave and triangle wave 40Hz~1k Hz;

The accurate value is 5% to 100% of the range, and the voltage range short-circuit allows ≤ 5 words of remaining readings.

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600 Ω	$>50\Omega$, No beep $\leq 50\Omega$, Consecutive beeps	0.001 Ω	about 2V	250V AC/DC
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10.8. Diode test

Range	Accuracy	Resolution	Open circuit voltage	Overload protection
3.3V	Open circuit voltage is about 3.9V, Measurable PN junction: $\leq 3.9\text{V}$ Forward voltage drop. Silicon PN junction voltage value is generally about 0.5~0.8V.	0.001V	about 3.9V	250V AC/DC

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10.6. Resistance

Range	Accuracy	Resolution	Overload protection
600 Ω	$\pm (1.0\%+5)$	0.1 Ω	250V DC/AC
6k Ω		0.001k Ω	
60k Ω		0.01k Ω	
600k Ω		0.1k Ω	
6M Ω		0.001M Ω	
20M Ω	$\pm (1.5\%+15)$	0.01M Ω	
60M Ω	$\pm (2.5\%+20)$	0.01M Ω	

Open circuit voltage: about 1V.

The accurate value is 5% to 100% of the range.

10.7. Continuity test

Range	Accuracy	Resolution	Open circuit V	Overload protection
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10.9. Capacitance

Range	Accuracy	Resolution	Overload protection
1nF	$\pm (5.0\%+40)$	0.001nF	250V AC/DC
10nF		0.01nF	
100nF		0.1nF	
1 μF		0.001 μF	
10 μF		0.01 μF	
100 μF		0.1 μF	
1mF		0.001mF	
10mF		0.01mF	

⚠ Measured value = measured display value-test lead open circuit value.

For capacitance $\leq 1\mu\text{F}$, it is recommended to use "REL" measurement mode, deduct the open circuit reading. The accurate value is 5% to 100% of the range.


Large capacitance response time: $\geq 1\text{mF}$ about 8s; measurement error does not include

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lead distributed capacitance.

10.10. Frequency Hz / Duty Cycle%

Range	Accuracy	Resolution	Overload protection
10Hz-10MHz	$\pm (0.3\%+3)$	0.01Hz-1kHz	250V DC/AC
10.0%-90.0%		0.1%	

 Frequency input amplitude requirements:

10Hz-100 kHz: $1V_{rms} \leq \text{Input amplitude} \leq 20V_{rms}$.


100 kHz-10 MHz: $3V_{rms} \leq \text{Input amplitude} \leq 20V_{rms}$.

Duty cycle:

10%-90% range, suitable for 10Hz-1kHz square wave;

30%-70% range, suitable for 1kHz-10kHz square wave;

Input amplitude : $3V_{pp} \leq \text{Input amplitude} \leq 20V_{pp}$

- (1) When LCD displays low battery " " symbol.
- (2) When the brightness of the LCD back light decreases.
- (3) When the buzzer sound of the meter becomes smaller.


2. General maintenance

- (1) The maintenance and service of this instrument must be completed by professional maintenance personnel or designated maintenance service department.
- (2) Please take out the battery when it is not used for a long time to avoid corrosion of the instrument caused by battery leakage.
- (3) Pay attention to waterproof, dustproof and anti-fall.

- The present operation instruction is subject to change without notice.
- The content of the operation instruction is regarded as correct. Whenever any user finds its mistakes, omission, etc., he or she is requested to contact the manufacturer.

10.11. Temperature test°C/°F

Range	Display range	Resolution	Overload protection
(-20~ 1000) °C	$<400^{\circ}\text{C} \pm (2.0\%+5)$ $\geq 400^{\circ}\text{C} \pm (1.5\%+15)$	1°C	250V DC/AC
(-4~1832)°F	$<752^{\circ}\text{F} \pm (2.0\%+5)$ $\geq 752^{\circ}\text{F} \pm (1.5\%+15)$	1°F	

 The accessory is equipped with a type K (nickel-chromium-nickel-silicon) thermocouple probe.

If the difference of the ambient temperature inside the machine reaches $\pm 5^{\circ}\text{C}$, the accurate value is available after 1 hour.

11. INSTRUMENT MAINTENANCE

1. The power supply of this product is 2 pieces AAA batteries, if the meter meets following conditions, please replace the batteries.

- The present manufacturer is not liable for any accident and hazard arising from the customer misuse or inadvertent operation.
- The functions described in this operation instruction should not be used as grounds to apply this product to a particular purpose.